

Appl. No. 10/800,288
Amdt. dated May 17, 2007
Reply to Office Action of April 5, 2007

Amendments to the Claims:

Listing of Claims

1. (Currently Amended) In combination with a prelube metalworking fluid, the improvement comprising the addition thereto of at least one antioxidant selected from the group consisting of alkylated diphenyl amines, N-alkylated phenylenediamines, alkylated monophenols, alkylated hydroquinones, hydroxylated thiodiphenyl ethers, alkylidenebis phenols, benzyl compounds, acylaminophenols, and esters and amides of hindered phenol-substituted alkanolic acids and at least one biocide selected from the group consisting of triazines, phenols, morpholines, formaldehyde releasers, ~~azoniatricyclodecanes~~ azoniatricyclodecanes, omadines, and oxazolidines in amounts sufficient to reduce oxidative and biological degradation.
2. (Original) The combination of claim 1 wherein the antioxidant is selected from the group consisting of alkylated diphenyl amines and N-alkylated phenylenediamines.
3. (Original) The combination of claim 2 wherein the antioxidant is selected from the group consisting of diphenylamine, dialkylated diphenylamine, trialkylated diphenylamine, or mixtures thereof, 3-hydroxydiphenylamine, 4-hydroxydiphenylamine, N-phenyl-1,2-phenylenediamine, N-phenyl-1,4-phenylenediamine, mono- and/or di-butyl diphenylamine, mono- and/or di-octyl diphenylamine, mono- and/or di-nonyl diphenylamine, phenyl- α -naphthylamine, phenyl- β -naphthylamine, di-heptyl diphenylamine, mono- and/or di-(α -methylstyryl) diphenylamine, mono- and/or di-

Appl. No. 10/800,288
Amdt. dated May 17, 2007
Reply to Office Action of April 5, 2007

styryldiphenylamine, N,N'-diisopropyl-p-phenylenediamine, N,N'-bis(1,4-dimethylpentyl)-p-phenylenediamine, N,N'-bis(1-ethyl-3-methylpentyl)-p-phenylenediamine, N,N'-bis(1-methylheptyl)-p-phenylenediamine, N,N'-diphenyl-p-phenylenediamine, N,N'-di-(naphthyl-2)-p-phenylenediamine, N-isopropyl-N'-phenyl-p-phenylenediamine, N-(1,3-dimethylbutyl)-N'-phenyl-p-phenylenediamine, N-(1-methylpentyl)-N'-phenyl-p-phenylenediamine, N-cyclohexyl-N'-phenyl-p-phenylenediamine, 4-(p-toluenesulfonamido)diphenylamine, 4-isopropoxydiphenylamine, tert-octylated N-phenyl-1-naphthylamino, and mixtures of mono- and dialkylated t-butyl-t-octyldiphenylamines.

4. (Original) The combination of claim 1 wherein the antioxidant is selected from the group consisting of butylated (45%) octylated (19%) diphenylamine, octylated phenyl- α -naphthylamine, mono-, di-, and tri-nonylated diphenylamine, 3,5-di-t-butyl-4-hydroxy-hydrocinnamic acid C₇-C₉ branched alkyl ester, and butylated (30%) octylated (24%) diphenylamine.

5. (Original) The combination of claim 4 wherein the antioxidant is butylated (30%) octylated (24%) diphenylamine.

6-7 (Canceled)

Appl. No. 10/800,288
Amdt. dated May 17, 2007
Reply to Office Action of April 5, 2007

8. (Previously Presented) The combination of claim 6 1 wherein the antioxidant is selected from the group consisting of thiodiethylene-bis(3,5-di-t-butyl-4-hydroxyhydrocinnamate and 2,6-di-t-butyl hydroxytoluene.

9. (Canceled)

10. (Previously Presented) The combination of claim 9 1 wherein the biocide is selected from the group consisting of 1,3,5-tris(2-hydroxyethyl)-S-triazine, hexahydro-1,3,5-tris(2-hydroxyethyl)-S-triazine, hexahydro-1,3,5-triethyl-S-triazine, hexahydro-1,3,5-tris(2-hydroxyethyl)-S-triazine iodine complex, and 1-(3-chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride).

11. (Original) The combination of claim 10 wherein the biocide is 1,3,5-tris(hydroxyethyl)-s-triazine.

12. (Currently Amended) A method for reducing the oxidative and biological degradation of a prelube metalworking fluid comprising adding thereto at least one antioxidant selected from the group consisting of alkylated diphenyl amines, N-alkylated phenylenediamines, alkylated monophenols, alkylated hydroquinones, hydroxylated thiodiphenyl ethers, alkylidenebis phenols, benzyl compounds, acylaminophenols, and esters and amides of hindered phenol-substituted alkanoic acids and at least one biocide selected from the group

Appl. No. 10/800,288
Amdt. dated May 17, 2007
Reply to Office Action of April 5, 2007

consisting of triazines, phenols, morpholines, formaldehyde releasers, azoniatriacyclodecanes, omadines, and oxazolidines.

13. (Original) The method of claim 12 wherein the antioxidant is selected from the group consisting of alkylated diphenyl amines and N-alkylated phenylenediamines.

14. (Original) The method of claim 13 wherein the antioxidant is selected from the group consisting of diphenylamine, dialkylated diphenylamine, trialkylated diphenylamine, or mixtures thereof, 3-hydroxydiphenylamine, 4-hydroxydiphenylamine, N-phenyl-1,2-phenylenediamine, N-phenyl-1,4-phenylenediamine, mono- and/or di-butyl-diphenylamine, mono- and/or di-octyl-diphenylamine, mono- and/or di-nonyl-diphenylamine, phenyl- α -naphthylamine, phenyl- β -naphthylamine, di-heptyl-diphenylamine, mono- and/or di-(α -methylstyryl)-diphenylamine, mono- and/or di-styryl-diphenylamine, N,N'-diisopropyl-p-phenylenediamine, N,N'-bis(1,4-dimethylpentyl)-p-phenylenediamine, N,N'-bis(1-ethyl-3-methylpentyl)-p-phenylenediamine, N,N'-bis(1-methylheptyl)-p-phenylenediamine, N,N'-diphenyl-p-phenylenediamine, N,N'-di-(naphthyl-2)-p-phenylenediamine, N-isopropyl-N'-phenyl-p-phenylenediamine, N-(1,3-dimethylbutyl)-N'-phenyl-p-phenylenediamine, N-(1-methylpentyl)-N'-phenyl-p-phenylenediamine, N-cyclohexyl-N'-phenyl-p-phenylenediamine, 4-(p-toluenesulfonamido)diphenylamine, 4-isopropoxydiphenylamine, tert-octylated N-phenyl-1-naphthylamino, and mixtures of mono- and dialkylated t-butyl-octyl-diphenylamines.

Appl. No. 10/800,288
Amdt. dated May 17, 2007
Reply to Office Action of April 5, 2007

15. (Original) The method of claim 12 wherein the antioxidant is selected from the group consisting of butylated (45%) octylated (19%) diphenylamine, octylated phenyl- α -naphthylamine, mono-, di-, and tri-nonylated diphenylamine, 3,5-di-t-butyl-4-hydroxyhydrocinnamic acid C₇-C₉ branched alkyl ester, and butylated (30%) octylated (24%) diphenylamine.

16. (Original) The method of claim 15 wherein the antioxidant is butylated (30%) octylated (24%) diphenylamine.

17-18 (Canceled)

19. (Previously Presented) The method of claim 12 wherein the antioxidant is selected from the group consisting of thiodiethylene-bis(3,5-di-t-butyl-4-hydroxyhydrocinnamate and 2,6-di-t-butyl hydroxytoluene.

20. (Canceled)

21. (Previously Presented) The method of claim 12 wherein the biocide is selected from the group consisting of 1,3,5-tris(2-hydroxyethyl)-S-triazine, hexahydro-1,3,5-tris(2-hydroxyethyl)-S-triazine, hexahydro-1,3,5-triethyl-S-triazine, hexahydro-1,3,5-tris(2-hydroxyethyl)-S-triazine iodine complex, and 1-(3-chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride).

Appl. No. 10/800,288
Amdt. dated May 17, 2007
Reply to Office Action of April 5, 2007

22. (Original) The method of claim 21 wherein the biocide is 1,3,5-tris(hydroxyethyl)-s-triazine.

23. (Currently Amended) A method for reducing the oxidative and biological degradation of a prelube metalworking fluid comprising adding thereto, in amounts sufficient to reduce oxidative and biological degradation, at least one antioxidant selected from the group consisting of butylated (45%) octylated (19%) diphenylamine, octylated phenyl- α -naphthylamine, mono-, di-, and tri-nonylated diphenylamine, 3,5-di-t-butyl-4-hydroxyhydrocinnamic acid C₇-C₉ branched alkyl ester, butylated (30%) octylated (24%) diphenylamine, thiodiethylene-bis(3,5-di-t-butyl-4-hydroxyhydrocinnamate, and 2,6-di-t-butyl hydroxytoluene and at least one biocide selected from the group consisting of 1,3,5-tris(2-hydroxyethyl)-S-triazine, hexahydro-1,3,5-tris(2-hydroxyethyl)-S-triazine, hexahydro-1,3,5-triethyl-S-triazine, hexahydro-1,3,5-tris(2-hydroxyethyl)-S-triazine iodine complex, and 1-(3-chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride).

24. (Currently Amended) The method of claim 23 wherein the biocide is ~~1,3,5-~~tris(hydroxyethyl)-s-triazine 1,3,5-tris(2-hydroxyethyl)-S-triazine.

Appl. No. 10/800,288
Amdt. dated May 17, 2007
Reply to Office Action of April 5, 2007

25. (Previously Presented) The method of claim 23 wherein the antioxidant is selected from the group consisting of butylated (45%) octylated (19%) diphenylamine, octylated phenyl- α -naphthylamine, mono-, di-, and tri-nonylated diphenylamine, 3,5-di-t-butyl-4-hydroxy-hydrocinnamic acid C₇-C₉ branched alkyl ester, and butylated (30%) octylated (24%) diphenylamine.

26. (Previously Presented) The method of claim 25 wherein the antioxidant is butylated (30%) octylated (24%) diphenylamine.

27. (Previously Presented) The method of claim 24 wherein the antioxidant is selected from the group consisting of butylated (45%) octylated (19%) diphenylamine, octylated phenyl- α -naphthylamine, mono-, di-, and tri-nonylated diphenylamine, 3,5-di-t-butyl-4-hydroxy-hydrocinnamic acid C₇-C₉ branched alkyl ester, and butylated (30%) octylated (24%) diphenylamine.

28. (Previously Presented) The method of claim 27 wherein the antioxidant is butylated (30%) octylated (24%) diphenylamine.